

CLAIMS

1. A 5-direction key operating device in which diaphragms respectively corresponding to five directions are proximately arranged in a shape of a cross, which comprises pushers
5 corresponding to the five directions on a key core face opposed to the diaphragms, and in which a single key is enabled to perform key operations of the five directions, and characterized in that

each of diaphragm contacts which are disposed on a printed circuit board opposed to the diaphragms is structured to have a
10 first contact, and at least one second contact surrounding the first contact, at least one strip-like contact portion which are elongated from each of the second contact to a side opposite to a side of the first contact is disposed in the second contact, and

15 the diaphragm contacts are arranged on the printed circuit board in a shape of a cross correspondingly with the five directions with tilting the strip-like contact portions of the diaphragm contacts by about 45 degrees to vertical and horizontal directions.

2. The 5-direction key operating device according to claim 1, wherein the strip-like contact portions are elongated in a fan-like shape with respect to a center of the first contact.

3. The 5-direction key operating device according to claim

1, wherein the strip-like contact portions are rectangular.

4. A 5-direction key operating device characterized in that five diaphragms are proximately arranged in a shape of a cross, pusher portions are disposed on a key core face opposed to the diaphragms, and a structure of a center pusher portion is different
5 from a structure of pusher portions surrounding the center pusher portion.

SUBM
5. The 5-direction key operating device according to claim 1, wherein a height of the center pusher portion from the diaphragm is different from a height of the surrounding pusher portions from the respective diaphragms.

6. The 5-direction key operating device according to claim 1, wherein a shape of the center pusher portion is different from a shape of the surrounding pusher portions.

7. The 5-direction key operating device according to claim 1, wherein a cross-sectional diameter of the center pusher portion is different from a cross-sectional diameter of the surrounding pusher portions.

8. The 5-direction key operating device according to claim 1, wherein one of a rib and a boss stands from an arbitrary position of the key core face which comprises the pusher portions.

9. A 5-direction key operating device characterized in that five diaphragms are proximately arranged in a shape of a cross, and a structure of a key skirt portion which is formed in a periphery of a key core face opposed to the diaphragms is changed.

SUB A2 10. The 5-direction key operating device according to claim 6, wherein one of a width and thickness of the key skirt portion is changed.

11. The 5-direction key operating device according to claim 6, wherein a shape of the key skirt portion is changed.

12. A 5-direction key operating device characterized in that five diaphragms are proximately arranged in a shape of a cross, and a load on a center diaphragm is changed from loads on surrounding diaphragms.

SUB A3 13. The 5-direction key operating device according to claim 9, wherein pusher portions are disposed on a key core face opposed to the diaphragms, and a structure of a center pusher portion is different from a structure of pusher portions surrounding the center pusher portion.

14. The 5-direction key operating device according to claim 10, wherein one of a rib and a boss stands from an arbitrary

position of the key core face on which the pusher portions exist.

15. The 5-direction key operating device according to claim 9, wherein a structure of the key skirt portion which is formed in a periphery of the key core face opposed to the diaphragms is changed.

16. The 5-direction key operating device according to claim 9, wherein pusher portions are disposed on the key core face opposed to the diaphragms, a structure of a center pusher portion is different from a structure of pusher portions surrounding the center pusher portion, and a structure of the key skirt portion which is formed in a periphery of the key core face opposed to the diaphragms is changed.

SUB A37

09057155 "053101